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### NOTE ON INFANTILE SCURVY.<sup>1</sup>

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THE subject of infantile scurvy as a special disease has received but passing attention at the hands of American authors. To Wm. Perry Northrup, of New York, the credit is due of having been the first American writer to so treat the affection, though the subject has received rather liberal treatment at the hands of a number of Continental writers. Heubner, of Leipzig, credits but 11 of 50 cases which he tabulated as occurring outside of England, to the United States. Starr had seen five cases during the sixteen months previous to December, 1895. The writer observed a notable increase in the number of cases at his clinic in the Pennsylvania Hospital during the past year; in addition, two in private practice; in all, nine.

The disease, if we may so term it, appears to be a not uncommon one; and the increase may be actual, as was the case with the clinical material at the Pennsylvania Hospital, or apparent, owing to the old classification, which included such cases under the head of rickets, purpura hemorrhagica, hereditary syphilis, etc. It is the purpose of this note to treat infantile scurvy as a distinct and separate disease. It occurs in the families of the wealthy as well as among the poor; indeed, the most pronounced case occurred in a family of ample means, where more than usual care and attention were given their offspring.

Until recently the major portion of the profession was inclined to view with satisfaction and a consider-

<sup>1</sup> Read before the College of Physicians, Philadelphia.

able degree of approbation sterilized milk as the food *par excellence* for infants, and a well-justified substitute for the various proprietary infant foods. The unusual frequency of infantile scurvy and the relation which various infant foods (*including sterilized milk*) bear as a causative factor, suggested the presentation of the following brief note.

#### DEFINITION.

Infantile scurvy may be defined as a disease characterized by mal-nutrition, developing insidiously, attended with general debility, anemia, ecchymoses in various parts of the body (principally the lower extremities and mucous membranes of the mouth), sponginess of the gums (going on to ulceration in severe cases), general muscular weakness amounting to immobility in the lower extremities (going on to pseudo-paralysis), attended with swelling about the joints, and excessive tenderness along the lines of the long bones, rarely terminating fatally when early placed under proper treatment. The symptoms vary according to the severity of the attack, etiologically holding an important relation to the deprivation of fresh foods, and almost immediately ameliorated by the administration of a proper diet. This, the so-called *therapeutic test*, becomes of great value in diagnosis.

#### ETIOLOGY.

Predisposition to rickets, scrofula, must of necessity increase the tendency to the production of the disease. That in the various proprietary infant foods and in the sterilization of milk we lack, in certain cases, a certain something which is needed for a proper nutrition of the tissues, there can be no doubt.

#### SYMPTOMS.

All the subjects present the evidences of mal-nutrition, anemia varying in degree. The red blood-corpus-

cles are decreased in number, with a corresponding diminution in the percentage of hemoglobin, the white corpuscles varying slightly. The blood-count of the cases under observation ranged from 2,200,000 to 3,800,000 c. c., hemoglobin 50 to 80 per cent. Microscopically, the red blood-corpuscles presented an irregular appearance poikilocytosis, with no other notable change. In one case the red blood-corpuscles showed slight pigmentation.

#### HEART AND CIRCULATORY APPARATUS.

Hemic murmurs were present in four instances, varying with the amount of anemia. Pulse rapid; temperature ranged between 99.8° and 101.5° F.; respiration averaged slightly above the normal.

Lungs negative, except in two cases in which fine moist râles were heard over both lungs posteriorly; no hemoptysis.

#### MUCOUS MEMBRANES.

The condition of the gums was variable, from slight sponginess to severe ulceration. In one case the swelling of the gums caused over-lapping, completely obscuring the front teeth from view; hemorrhage was occasioned by the slightest irritation. In other cases simply petechiae, showing a tendency to fuse, were noted, with ecchymoses in the fauces and soft palate. In one case, where the gums were treated by the attending physician with a solution of nitrate of silver, ulceration with exuberant granulation formed along the upper gums, completely obscuring four upper teeth, and presenting a gangrenous appearance, which bled upon the slightest touch. In milder cases simply sponginess of the gum existed. Bowels showed a tendency to looseness, though constipation existed in one case; in none was blood passed in the stools, though the condition has been noted by different observers.

## KIDNEYS.

The specific gravity of the urine ranged 1.018 to 1.026; high colored; traces of albumin in three cases, with hematuria as a later manifestation. In one case hyaline and blood-casts were observed. The age of the children made a careful observation in most instances unsatisfactory.

## NERVOUS AND MUSCULAR SYSTEMS.

There was general debility, languor, peevishness and irritability. Weakness in the lower extremities was marked, with a decided tendency to pseudo-paralysis — to a much less degree in the arms. All favored the recumbent posture, with the limbs drawn up and flexed. When sitting would throw the body forward, resting upon the thighs; this posture was characteristic. Electrical reactions normal, knee-jerk *minus*. In but two cases were there enlargements about the epiphyses; there was considerable tenderness over the tibia and along the course of the femur and about the joints.

As all the patients presented a group of symptoms almost identical, I will occupy but a few moments with brief notes on several of the more interesting, presenting the severest and the mildest type.

## CASES.

CASE I. G. G., age ten months, of healthy parents, was presented at the clinic in the Pennsylvania Hospital, with the following record: Family history negative; no history of syphilis, tuberculosis, rickets or alcoholism. Parents unusually healthy. Patient was one of four children, all healthy and strong; bottle-fed. Mother noticed, five weeks previously, that the food did not appear to agree, though she persisted in its use. One week previous to bringing patient to the hospital, noticed the gums

were red and swollen, and that the child cried out when the legs were touched or moved. The physician who saw the case pronounced it rheumatism, and so treated it. On admission the temperature was 100°, pulse 126, respiration 24; presented the appearance of advanced mal-nutrition, anemia, lips and ears bloodless. The anemia suggested that produced by hemorrhage. Patient was irritable, restless, unable to sit up. When an attempt was made, sat with body resting forward, and cried to be placed on its back; indisposition to move the lower extremities; arms were slightly affected; gums ulcerated (overhanging two upper teeth), and bled upon the slightest irritation; showed a disinclination to take milk through the nipple. There were ecchymotic spots on lower gums and several petechial spots over tibia. Bowels constipated; urine high-colored, otherwise negative. Blood examination: 2,600,000 red blood-corpuscles, with one white to 200 red; hemoglobin, 55 per cent. Heart and lungs: hemic murmurs, with a few moist râles over both sides, posteriorly. Muscular system: lower extremities painful on motion, with great tenderness about both knee-joints, and along the shaft of the femur.

Treatment consisted in Pasteurized cows' milk, orange-juice and beef-juice. Progress was slow. The parents were above the average in intelligence; and though we were assured proper care was taken in the preparation of the food, we insisted upon a specimen being brought us for examination. The mother then acknowledged that though she was using the orange-juice and beef-juice, she was also using a prepared food suggested by a friend — Liebig's. She agreed in the future to carry out the directions given; in less than one week from the time Pasteurized cows' milk was used, the patient began to improve; the gums ceased to bleed, and in ten days had healed perfectly. With massage of the lower limbs, motion and full

power returned. In three weeks from the first visit to the hospital the patient was discharged, practically well, with no evidence of previous illness except slight anemia, for which small doses of citrite of iron were administered.

The diagnosis of rheumatism and the rapid amelioration of acute symptoms under change of diet, are the points of especial interest in this case. Such is the type of case which occurred during the prolonged administration of one of the well-known and frequently used proprietary infant foods.

CASE II. The following notes are of a case in private practice and one which was under constant observation:

R. D., age eleven months, of healthy parentage, one of three children, came with the history of having rheumatism. The symptoms were entirely referable to the lower extremities, which were painful to the touch, though no evidence of swelling could be detected. When the soles of the feet were pricked the child would make partially successful efforts to draw the limb up; pressure along the femur or over the knee-joints occasioned considerable pain. Petechial spots were present over both tibia and on the *lower* gums. There was slight anemia. Heart and lungs negative; bowels loose. As the patient was upon sterilized milk, the diet was continued, and in addition beef-juice and orange-juice; but little progress was made. At the end of ten days the gums were decidedly spongy, the limbs not at all improved (owing to the tendency to diarrhea), and considerable gastro-intestinal irritation. Pasteurized milk with Fairchild's peptogenic powder was substituted for the sterilized milk, in addition to beef-juice and orange-juice, which were continued. Without it were possible to witness the rapid progress toward recovery which this case made, I fear any account would be incredible. Suffice to say, that in four weeks, with the exception of

the anemia, the symptoms had entirely disappeared. The patient had regained entire control of the lower extremities, is now increasing in weight, and the anemia rapidly disappearing.

Rheumatism was again the error in diagnosis in this case, and again a point of considerable interest, as well as the rapid amelioration under change of diet rich in fresh food. This child had been brought up on sterilized milk. Of the nine cases which I have had an opportunity of studying personally, six were fed upon one of the proprietary infant foods, three upon sterilized milk — all bottle-fed.

#### DIAGNOSIS.

From the insidious nature of the affection, the history of the cases and the character of the symptoms there can be no difficulty in reaching a correct diagnosis. To recapitulate: general debility, anemia, sponginess and bloody extravasation of the gums; petechiae and ecchymoses upon the lower extremities when present; the enlargement and tenderness about the joints and along the shafts of the bones; and the apparent loss of power, muscular rather than nervous in origin, in infants fed upon any of the propriety foods or sterilized-milk preparations, present a picture almost characteristic. The slight fever (frequently entirely absent) becomes an important point in the differential diagnosis from *acute rheumatism*, the swelling in scurvy being above and outside of the joint proper — in rheumatism confined to the synovial sack; and, finally, the *therapeutic test*, justly so called, which is invariably attended by the rapid amelioration of the symptoms.

The history of the case, the absence of evidences of rickets, and the subsidence of the symptoms under treatment, all go to exclude the diagnosis of an affection the symptoms of which are usually of pre-natal origin. In those cases where scurvy occurs in chil-

dren previously the subject of rickets, the diagnosis might appear difficult; but even here the rapid disappearance of the acute symptoms under treatment would aid us in eliminating a distinctly constitutional disease.

#### TREATMENT.

Of treatment sufficient has been said. The use of a diet rich in fresh foods, of a character suitable to the age of the child, beef-juice and orange-juice, with the use of Pasteurized (or what has been termed humanized) milk for infants, has proved ample in our hands. Medicinally the use of minute doses of citrate of iron internally, massage, hot and cold douches to the lower extremities, are of use where the progress is slow in those cases of pseudo-paralysis.

In presenting this brief note on infantile scurvy, it is to be hoped some interest will be aroused in an affection which until recently received but little attention as a *special* disease of infants, and in the important relation which sterilized milk holds as a causative factor, in addition to the various proprietary infant foods. Until this time I can find no reference to a case of infantile scurvy occurring during the administration of Pasteurized milk.

Owing to a rapid recovery in all the cases under observation, no opportunity was given for examining, post-mortem, any of the lesions; those observers who have had such an opportunity, however, described well-marked lesions, principally of a hemorrhagic character, occurring in all the tissues and organs of the body.